2N OfficeRoute

USER MANUAL

version 1.3

2N OfficeRoute

Dear customer,

*let us congratulate you on having purchased the **2N OfficeRoute** system. This new product has been developed and produced in order to provide the maximum utility value, quality and reliability to the user. We hope you will be fully satisfied with the 2N OfficeRoute for a long time.*

- The manufacturer constantly improves the software contained in the product (the so-called firmware). The technology used therein helps you download the latest firmware version to the 2N OfficeRoute using an ordinary PC anytime. For the latest firmware version see **www.2n.cz**. We recommend you to apply the latest version to avoid problems that have already been eliminated.

- You also find the latest version of the User Manual at **www.2n.cz**.

- Check your delivery for completeness according to the packing list and study this manual carefully before installing this product. The manufacturer shall not be responsible for damage caused by any use of this product in contradiction with the User Manual. The warranty terms and conditions do not apply to damage incurred as a result of gross handling and/or undue storing of the product or violation of the technical parameters included herein.

- This manual is very much detailed and includes subsections that are irrelevant for the basic installation purposes as well as subsections referring to other 2N OfficeRoute models. Therefore, pay attention to hints informing you which subsections are necessary for you and which are not.

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1 Packing List

*Please check your **2N OfficeRoute** delivery for completeness with the following packing list.*

Item	Pieces
2N OfficeRoute – check the model type according to the order number, see the type label on the gateway back side	1
12V/2,5 A mains adapter	1
USB cable	1
ETHERNET cabel	1
Antenna	1
Wall mounting holder	1
Dowels	2
Screws	2
Quick user guide	1
Warranty certificate	1
Compliance certificate	1
2N product CD	1

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2 Product presentation

The 2N OfficeRoute gateways provide direct interconnection of VoIP, GSM and UMTS networks with the support of SIP signalling protocol.

The voice mode, i.e. an outgoing or incoming call, is the basic function of the system. The gateway is equipped with all functions necessary for such use and provides a very high comfort in this mode.

The data mode, i.e. HSPA/EDGE/GPRS data router, gives a possibility to use 2N OfficeRoute as a router, firewall and DNS proxy. It also has a DHCP server functionality. There is also very unique feature – VRRP+ (virtual router redundancy protocol) so it can serve as a back-up route of your internet connectivity.

In addition to voice transmission, 2N OfficeRoute can send and receive short text messages. It is giving you an option to integrate SMS functionality to you email client (i.e. MS Outlook).

2N OfficeRoute contains an inbuilt SIP proxy server and can thus serve as an IP PBX for SIP telephones.

No extra equipment (an external GSM telephone, etc.) is needed for normal operation. All programmable parameters are default-preset in such a manner that you can commence your telephone traffic the moment you connect the Ethernet and supply cables, antenna and SIM card and set the IP parameters.

2.1 How to Save Telephone Costs

You are advised to use the **most advantageous tariff of your GSM provider** for your UMTS/GSM calls.

You can bar selected numbers or groups of numbers in your gateway. **You shall pay nothing for the calls you have barred.**

2N OfficeRoute keeps detailed records on all calls. This helps you **find out easily why your bill is higher than it should be**.

The Least Cost Router is flexible enough to help you set rules for **GSM/UMTS/SIP calling at the lowest possible operation costs**.

2.2 Other Advantages and Applications

2N OfficeRoute integrates the best of all communication technologies.

With the aid of a built-in SIP proxy server you can create a **complete VoIP network without additional** third party products' **costs**.

The **intelligent routing of incoming calls** accelerates the connection of incoming calls and makes calling more comfortable.

An easily recordable DISA voice message function is available.

You can use the conditioned or unconditioned call forwarding function.

You won't loose any call with internal voicemail and Mobility Extension features.

Unlike mobile telephones, this system does not expose you to the RF electromagnetic field while making calls.

2.3 RF Radiation Safety Precautions

! It is prohibited to use any transmitters, including UMTS/GSM devices, in areas where explosives are used, such as quarries.

! A GSM/UMTS devices may affect sensitive life-saving devices in medical centres.

! In general, any prohibition regarding mobile phones based on RF energy radiation applies to GSM/UMTS devices.

! Where necessary, a 2N OfficeRoute may be installed at a safe distance (in the neighbouring building, e.g.) and an Ethernet cable may be carried from the device gateway to the original building.

! Although 2N OfficeRoute is not intended for aeroplanes, all relevant prohibitions and regulations regarding mobile phones apply to them here.

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3 Installation

This section shows how to install the 2N OfficeRoute gateway including all accessories.

Here is a survey of what you will find in this section:

What you should know before you start;

Overview of installation steps;

How to choose the right place;

Connection to PC network;

Antenna connection;

Supply mains adapter connection;

SIM card replacement;

PC connection with a USB;

How to read LED statuses.

3.1 Before Installation

Before you start installing your 2N OfficeRoute, get familiar with its physical structure, arrangement of connectors and status indicators.
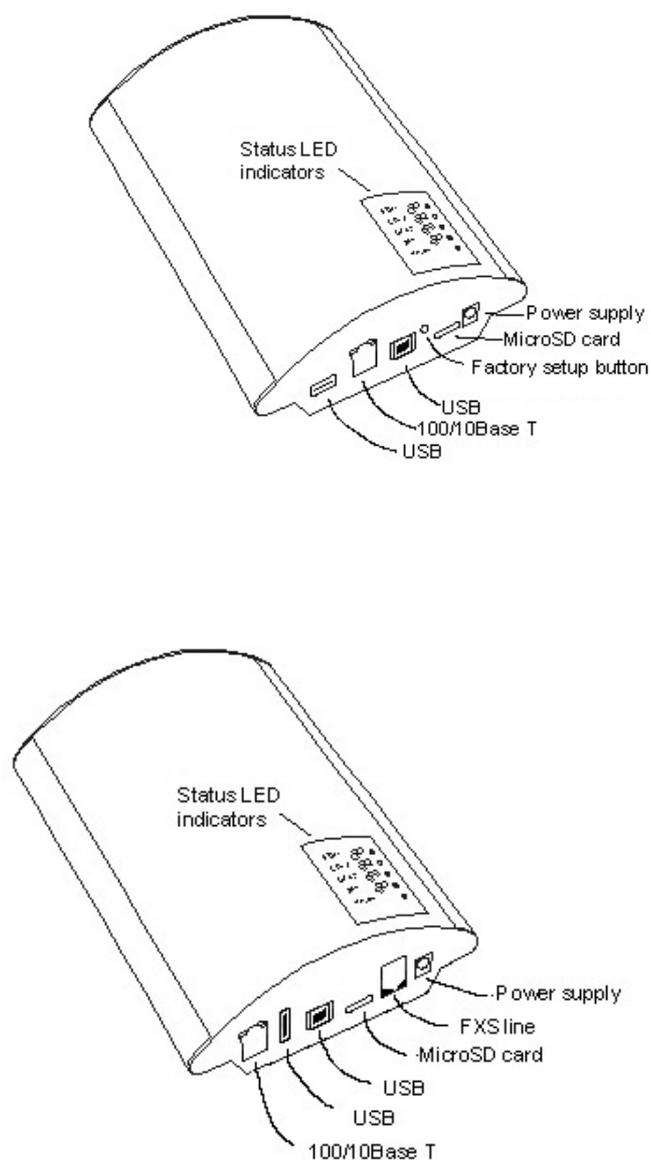
Fig. 1 – Bottom View

2N OfficeRoute
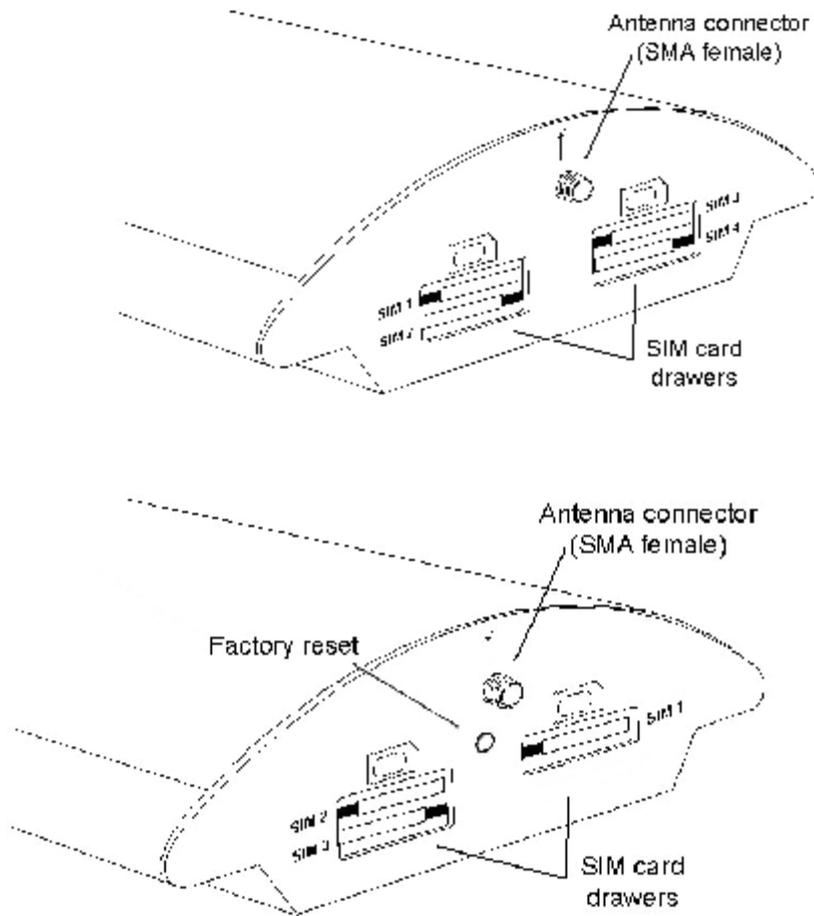
Fig. 2 – Top View

3.2 Brief Installation Guide

Proper mounting – 2N OfficeRoute is designed for suspension on a vertical surface. Fit the holder included in the delivery on a wall and hang the gateway on it. For details on the prescribed working position and other recommendations refer to Subsection 1.

Cable connection – connect the gateway using a patch-cable to the LAN (Local Area Network). For details on proper wiring refer to Subsection.

Antenna connection – connect an internal antenna or an external antenna cable to the SMA antenna connector. Place the external antenna on a place with a good UMTS/GSM signal (refer to Subsection).

Gateway power supply – the delivery includes a mains adapter. Plug in the adapter connector into the gateway and the power adapter into a mains socket ($\approx$230V/50Hz). The gateway turns on immediately (see Subsection).

SIM card insertion – SIM cards are inserted in holders on the gateway top.

PC connection and initial configuration – a web browser is used for gateway configuration in normal operation. If you have not defined the IP address for the gateway, use the USB cable included in the delivery for initial configuration of the basic parameters or reach OfficeRoute on its default IP address 10.0.0.1.

Setting and monitoring – Having set the basic network parameters (IP address, etc.), you can configure OfficeRoute using a standard web browser (http or https). Configuration options and essential procedures shall be discussed in detail in respective sections.

3.3 Proper Mounting

The device is designed for mounting on a vertical surface. For this purpose a wall mounting holder is available. Just fit the holder with dowels and screws to the wall and hang the device.
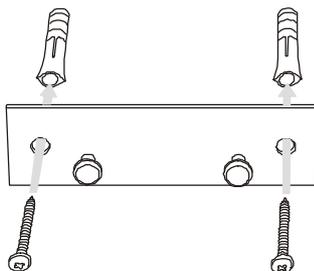
Fig. 3 – Gateway Holder Wall-Mounting
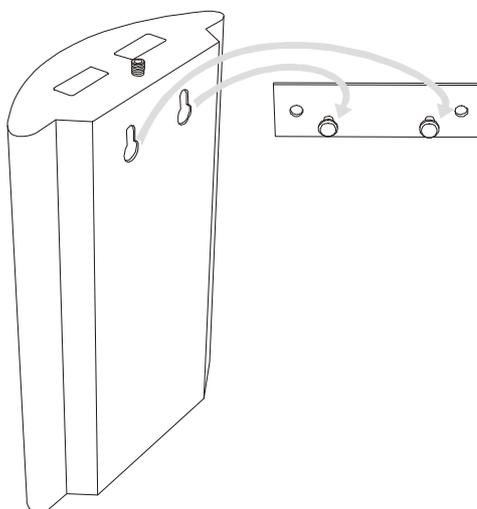
Fig. 4 – Gateway Holder-Hanging

It is possible to operate this device in another working position (e.g. on a desk) for a short time only, for example in servicing centres for quick testing purposes.

The allowed working temperature and relative humidity ranges are included in Section bellow.

Exceeding the recommended operating temperature values need not affect the gateway function immediately but may result in more rapid ageing and lower reliability.

The device is intended for indoor use. It may not be exposed to rain, flowing water, condensed moisture, fog, or mist.

The device may not be exposed to aggressive gas, acid vapours, solvents, etc. or aggressive liquids, during cover cleaning, for example.

The device is not designed for high-vibration environments, e.g. means of transport, machine rooms, etc.

Free space has to be left under and over the device for cables and agitated air to remove operational heat.

Install the device on a place with a good UMTS/GSM signal.

A misplacement of the GSM/UMTS device or its antenna near television, broadcasting or similar RF-sensitive devices may exercise an adverse effect upon their function.

Being a source of RF energy emission, the device antenna should not be located close to human bodies. The hazard is higher than with mobile telephones because the device is usually used by many people and thus employed more often.

3.4 LAN Connection

2N OfficeRoute is connected to the 10/100BASE-T (Twisted Pair Ethernet) LAN using a standard straight (non-crossed) cable terminated with RJ-45 connectors like other types of equipment (PC, etc.).
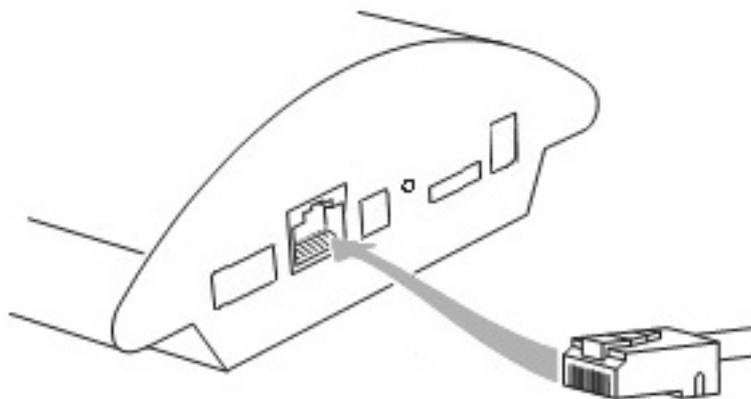
Fig. 5 – LAN Connection

3.5 Antenna Connection

No matter if equipped with one UMTS and one, two ot three GSM modules, it has just one SMA antenna connector, to which an external antenna cable is connected. This external antenna should be installed vertically on a place with a good UMTS/GSM signal.
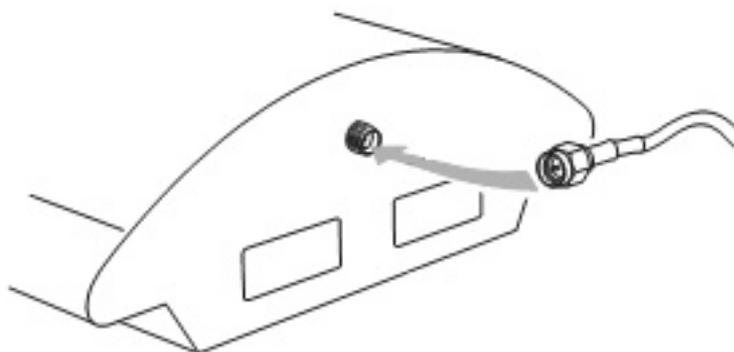
Fig. 6 – Antenna Connector Connection

Tighten the antenna connector **gently** with your hand, never use a wrench!

3.6 Gateway Power Supply

Be sure to use only the mains supply adapter that is included in this device delivery.

Before plugging in the device, make sure that the mains voltage value meets the data given on the mains adapter label.

Furthermore, make sure that the antenna has been connected. If you connect the device to the power supply without an antenna, the UMTS/GSM module transmitter might get damaged.

Now plug the supply adapter into a mains socket and connect the adapter connector to the device,. The status indicators indicate the proper operation. For their meanings refer to a Subsection.
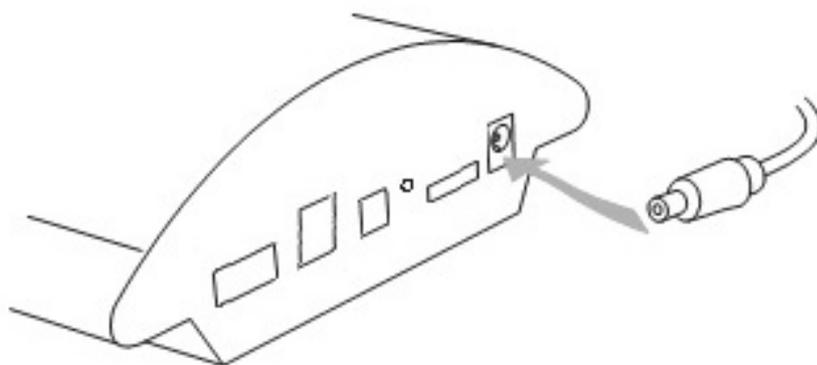
Fig. 7 – Supply Adapter Connection

3.7 SIM Card Insertion

To insert your SIM card in the device, press the yellow button on the appropriate card drawer with a suitable tool to make the drawer slide out a little. Remove the drawer, insert the SIM card and replace the drawer. You can not replace SIM cards even with your device on.
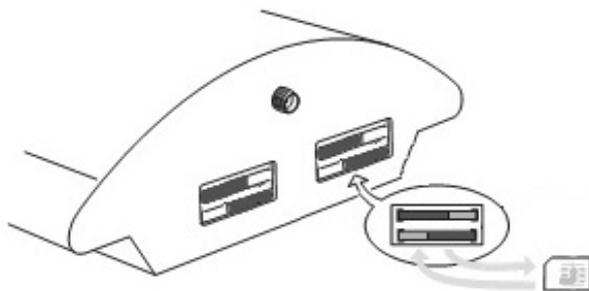
Fig. 8 – SIM Card Inserting Procedure

3.8 PC Connection

You need direct interconnection of your 2N OfficeRoute gateway and PC especially when you do not know the gateway IP address and thus cannot configure it using a web browser. In such a case, connect the gateway directly to your PC USB port with the cable enclosed and select the basic network parameters using your console interface.

You can control the console interface with any terminal-emulating program according to the VT-100 specification at least. The Microsoft Windows OS, e.g., contains a communication tool *HyperTerminal*, which can be used for this purpose.

By default, the gateway serial port communication parameters are set at 921,600 bits per second, 8 data bits, no parity, 1 stop bit, no flow control. Set the communication program on the PC side identically.

3.9 Status Indicators

There is a panel with five LEDs on the gateway upper cover. The *Power* indicator signals that the gateway as a whole is in operation. The other LEDs, marked *CH 1* to *CH 4*, indicate the status of each module.

3.9.1 *Power* Indicator

Basic diagnostic tests are performed automatically whenever the gateway is connected to supply voltage. Each test step is signalled by a specific colour combination of the LEDs. The testing process is usually shorter than 0.5 sec and so it looks like a quick sequence of LED flashes at first sight. If, however, a test step fails, the indicator combination related to the failed test remains lighted. This provides a convenient troubleshooting tool to the technical support personnel.

After all hardware tests have been completed successfully, the operating system kernel is loaded. During the process, all module indicators are off and the blue continuous *Power* light blinks with the period of approximately 1 second.

When the operating system kernel has been loaded, the blue *Power* indicator keeps shining continuously.

In exceptional cases, when a fatal failure of software occurs and the gateway stops working, the *Power* indicator starts flashing quickly. All you can do is disconnect the gateway from the power supply for a few seconds and restart it.

Power Indicator (blue)	
No light	The system is not working.
Blinking	The system kernel is being loaded.
Continuous light	The system is working.
Quick flashing	Fatal failure

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3.9.2 *GSM* Indicators

The *CH 2* to *CH 4* indicators signal the status of the respective GSM module. After connection to the power supply, the VoIP gateway application starts within two minutes. During that time, the installed GSM modules and SIM cards are detected. If a GSM module or SIM card is not detected, the respective indicator remains off.

If they are detected, the process of module and SIM card initialisation is commenced. The respective indicator shines red during the process. If the process is unsuccessful, the LED goes off. If the indicator turns orange, it means that the module has not logged-in to any GSM network.

If the LED is green, you can make calls and send SMS via the respective module.

The respective module LED blinks green quickly during call establishing. When the connection has been built successfully, the indicator remains green during the whole call.

GSM Indicators	
No light	The module is ready
Red light	SIM card initialisation in progress or no SIM card is in the drawer.
Yellow/Orange light	The SIM is not logged-in to any GSM network.
Quick green blinking	A call is being established (dialled).
Green light	A call is being made.

3.10 Console Access

The console system is arranged as a set of nested menus. By selecting a menu item you either get into a submenu, or have the required operation executed, or set the selected parameter.

3.10.1 Serial console access

When the gateway is powered on, the main menu should get displayed after terminal connection.

When you're entering an the main menu, press ⌨ for to appear.

```
    OfficeRoute V2-2-0          Main Menu
 OfficeRoute


      Option                Value      Description

   1 – Configuration      [ menu ]  – General configuration
   2 – Set Admin password            – Set administration password
   3 – Help                          – Display help for serial
 console settings



 Enter an option number, <ESC> previous menu
    >
```

Every menu consists of the following parts:

Header: Contains (from the left): the product name, firmware version, menu name and network name assigned to the equipment.

Options column: Displays numbers and names of available options.

Value column: If "[menu]" is displayed, the item includes a submenu. Otherwise it shows the actual value of the option.

Description column: Explains briefly the meaning of every option in the menu.

„Enter an option number…>": Here enter the option number.

To select an option from a menu, enter its first number and press ⌨ for confirmation.

3.10.2   Submenus

If you select a submenu, this submenu gets displayed. Now you can select items from the selected submenu or return by pressing ⎣ ⌄ ⎦.

3.10.3   Commands and Values

If you are requested to enter some information after selecting an item, you should enter one of the following values:

Key word: A list of one or more fixed strings. To select one, enter only so many initial characters as can differ it unambiguously from other key words.

```
Enter one of [ansi,color,teletype] : a
```

In the above mentioned case, select a key word by entering just an "a", "c", or "t"" and press ⎣Enter⎦.

String: an arbitrary number of characters. The acceptable value interval may be included in the prompt.

```
Enter a hostname from 1 to 32 characters:
OfficeRoute
```

Integer: A decadic integral number. The acceptable value interval may be included in the prompt.

```
Enter a size between 1 and 100 : 99
```

A hexadecimal integral number – number to be entered in the hexadecimal format using characters 0÷9 and a÷f or A÷F.

```
Enter a hex number between 1h and ffh : 1a
```

MAC address: up to 12 hexadecimal digits of the physical address. Zeros at the beginning can be omitted.

```
Enter    the    remote    network    address    :
50C229C4E2
```

IP address: an Internet address in the format of four digits of 0÷255 separated with dots.

```
Enter an IP address : 192.168.22.30
```

As soon as the requested information is entered, the respective operation is executed, new values are displayed in the redrawn menu.

Some configuration parameters may have just one of two constant values. By selecting such an item you immediately make its value opposite to that preceding the selection. Typical examples are *on* and *off* parameters. If their value is *on*, then it becomes *off* when the item is selected and vice versa.

Some commands execute operations that have a serious impact on the behaviour of the entire system (such as restart). Therefore, the system usually "makes sure" before execution whether it is really your intention.

```
Are you sure [y/n] :
```

If you give an answer other than "y" or "Y", the command will not be executed.

To cancel the command execution and quit the prompt press the ⌷ key any time.

3.10.4 About Menus…

We shall discuss the serial console menus in detail in sections devoted to gateway parameter settings. Below is a brief survey of these menus only.

Main menu: Appears after the USB cable is connected to the terminal (sometimes you must press Enter).

Configuration menu: Contains six submenus: network configuration, serial console settings, command line, states, reboot and settings.

Network configuration: Used for setting the gateway IP address, network mask, initial router, DNS addresses, network name and domain.

Serial console configuration: Helps set the terminal type and change the initial serial link parameters – transition rate, data and stop bits, parity and flow control type.

Command line: Allows you to set/change basic telephony settings – lcr, routes, sip, devices, calls, disa.

States: There are states of devices (strength of signal, register status, etc.) and calls.

Reboot: This option restarts the device.

Settings: DHCP and VRRP server settings.

3.10.5   Telnet console access

This is a short description of new features added to the serial console configuration. For the standard serial console configuration capabilities refer to the 2N OfficeRoute

There is also a possibility of using Telnet for 2N OfficeRoute configuration in addition to the standard serial console configuration. Connect to your OfficeRoute via Telnet (type telnet <your OfficeRoute IP address> in command line). If successful, OfficeRoute will require an authentization from you. To log in, use valid login and password of one of OfficeRoute's users who is in Administrators group. No user other than user from Administrators group will be logged in. If login and password entered correctly, you will be logged in.

Now you will see the window similar to the standard serial console configuratoin window and you can work with it in the same way. To log out Telnet configuration, get to the main menu and choose Logout option (this option is not visible in the serial console window).

There are all menus available as by USB access.

3.11 Web Browser Access

While the serial console interface enables you to change the basic gateway parameters only, the web browser gives you access to all parameter settings and services available in the OfficeRoute gateway. To establish connection with the gateway, enter the gateway IP address into the Internet address setting line in the browser, e.g.:

> http://10.0.0.1

If you have connected all parts properly and set the correct gateway and PC IP addresses, the request to enter the access user name and password should get displayed.

⚠️ The manufacturer supplies the gateways with a predefined default user account *Admin* without having set its default password. Mind the Upper/Lower Case while entering the user name and password! The first thing you should do for safety reasons after putting your gateway in operation is to change the administrator password.
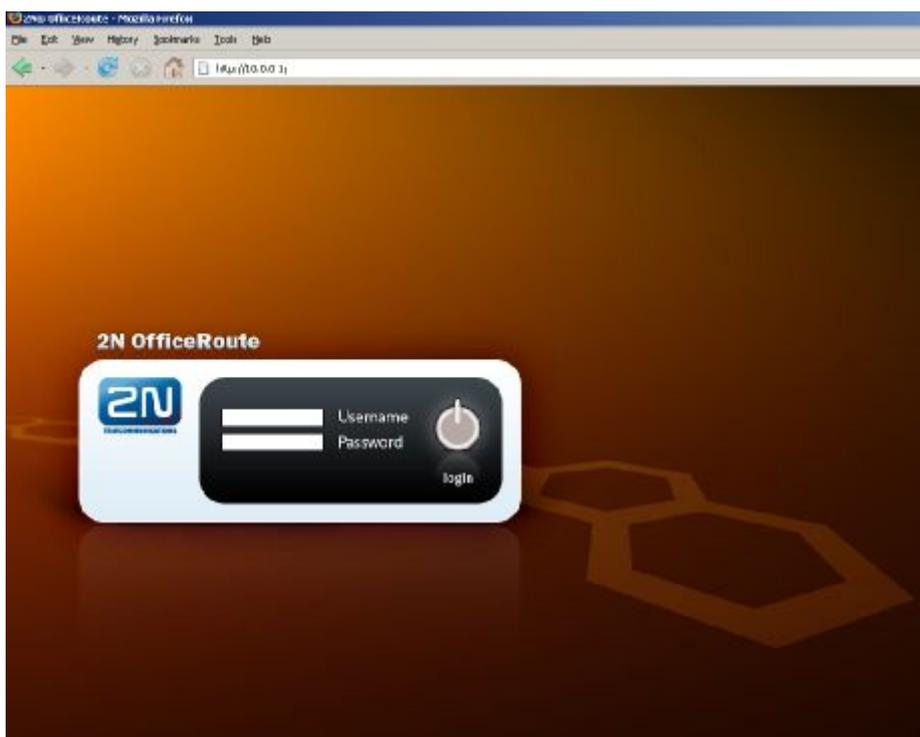
Fig. 9 – Web Administration Login Page

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After a successful login you get onto the main page of the web application. The window is divided into four parts,.

Fig. 10 – Web Interface Desktop

Header bar: Network, User management, Telephony services, Administration, States&logs and Messaging. Above the header bar are bookmarks which help you select the user relation language and displays the currently logged-in user.

Group menu: There is a group menu for each selection from Header bar on the left side. The bookmark settings are arranged in two menu levels. By selecting a Level 1 item you display the respective Level 2 subitems. If the Level 1 item contains no more subitems or if you select a subitem, the appropriate application form gets displayed on the remaining window space.

3.11.1 Survey of Group Bookmarks and Menus

Network: IP address settings, DHCP server settings, Firewall settings, NATP settings, DNS proxy settings and HSPA/EDGE/GPRS data settings.

User management: User groups and user (extension) management.

Telephony services: Devices (SIP, H.323, DISA lines) management, GSM incoming routing settings (Operator/DISA), LCR settings.

Administration: Main settings, Time and Timezone settings, Firmware upgrade, Licence upload, Configuration back-up/restore.

States&Logs: States of Devices and calls, Logs for debugging/troubleshooting, CDR.

SMS: SMS delivery settings (web and SMTP/POP3), SMS sending web portal.

There is just basic survey of menus. Individual types of forms, their meanings and options will be discussed later.

4 Network settings

Main settings: OfficeRoute's own IP address, mask, default gateway and DNS. There is also a possibility to switch on DHCP client (when OfficeRoute doesn't serve as a DHCP server and there is another DHCP server in the network). It is also possible to set Main settings via serial console or via telnet console.

Filtering: Settings of embedded firewall. It is possible to set rule for accepting/baring according type of traffic, source or destination IP address or port.

Port mapping: NATP setting for access devices in an internal LAN via UMTS network (public IP must be assigned to OfficeRoute by an operator).

DHCP server: Settings for DHCP server in case that OfficeRoute serves as LAN DHCP server.

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Fig. 11 – DHCP server settings form

Lease time: validity of a leased IP address

Start address: start of an IP addresses pool

End address: end of an IP addresses pool

Subnet option: Subnet mask for internal network

Router option: Default gateway of subnet (typically it is IP address of the OfficeRoute, for VRRP it is IP address of the virtual router.

Primary and Secondary DNS: Used only in case of local DNS servers in the LAN.

DNS proxy: Serves for caching DNS records in case that OfficeRoute works as an UMTS router.

VRRP: Settings for Virtual Router Redundancy Protocol (Described in other part of this manual).

5 User management

Users: List of all users, Add/Remove user. User is either extension or user allowed to send SMSes.

Fig. 13 – List of available users

There are 2 default users: *Admin* and *vbegw*.

Admin is default user and it is not possible to remove him. Mainly serves for management of the device. **Emergency change of *Admin*'s password** – connect OfficeRoute via USB cable and by serial console change Admin's password (it is not necessary to know previous password.

Vbegw is default user for internal SIP line (explanation of internal SIP line is further in this manual).

Groups: Settings of user's rights.

Fig. 12 – List of available groups

Administrators is group with all rights enabled.

Add group: A new group adding

By ticking checkboxes assign rights.

Add user: Adding of a new user/extension

Fig. 16 – 'Add user' form

User name: User name for log-in to OfficeRoute's web interface and SIP authentication.

New password: Password for log-in and SIP authentication.

Group: Select group of the user

Default application: Webpage/Form after logging into OfficeRoute's web interface.

Rights/Rights denied: Select rights or left empty – rights are assigned by group selection except SMS rights.

Line number: In case that user is both – extension and user, Line number is UID (number of extension/SIP name)

Mobility extension: It is discussed further. In case you need to set Mobility Extension for this user, tick Outgoing/Incoming ME checkbox and fill his mobile phone number.

Voicemail: It is discussed later. Set PIN for entering user's voicemail and set his mobile phone number for receiving notification SMSes.

6 Telephony services

Devices: List of SIP lines (SIP trunks), SIM cards (available in the unit or presented in the past) and DISA lines. DISA line can be standard welcome message or customized welcome message, voicemail system and basic IVR.

Fig. 14 – List of available SIM cards

Modification of SIM card's parameters:

There is a checkbox 'Present' at the top of the form which indicates whether SIM is present in the tray at the moment. **It is highly recommended to power unit off when you plug/unplug SIM.**

Bellow this checkbox are information abour SIM's serial number (IMSI), operator's network code and name.

There is also possible to fill 'USSD code for credit' check for prepaid SIM cards. If you fill proper USSD code and SIM card is prepaid, you can obtain information about credit by clicking to 'Get credit' in the SIM cards list.

For sending SMSes is necessary to fill proper 'Service centre number'.

In order to be able to use SIM for data/internet connection (for GPRS/EDGE/UMTS/HSPA) is necessary to set following parameters – 'GPRS provider name' (it can be any random name) and 'APN (GPRS access point)'. Other parameters depend on a specific

network provider – you can find these information on a webpage of a network provider or obtain from his helpline.

Fig. 15 – Modify SIM card form

LCR: Least Cost Router is 'the brain' of OfficeRoute. All rules for call routing (inbound and outbound) can be set there.

Fig. 169 – List of LCR rules

LCR menu contains *Time intervals* (for using time conditions), *Normalization* (for incoming/outgoing number normalization), *Tariffication* (for setting free minutes, free SMS, etc.), *Blacklist*, *Routes* (a Route is outgoing direction/trunk consisting of GSM/UMTS module(s), SIM card(s), SIP line(s) or DISA line).

Main window shows list of LCR rules (used prefixes and routes).

Time intervals – There is a possibility to define time interval (condition) for using certain LCR Route. Default Time intervals are 'Weekdays', 'Weekend', 'Workdays'. It is also possible to define certain Time range.

Normalization – This menu item is used when certain dialed numbers should be modified.

Example:
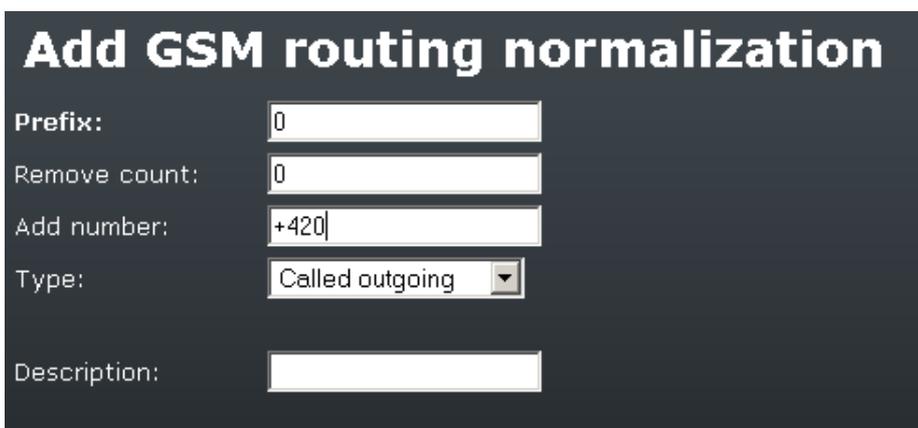
Fig. 17 – 'Add normalization' form

If dialed number is *0737555666*, all LCR rules are applied and before it is sent to selected LCR route, 0 is removed (prefix is removed automatically) and +420 is

added. Remove count is number of removed digits behind prefix. Final normalized number in this case is *+420737555666*.

It is also possible to modify number before LCR rules are applied (Type is 'Called incoming') or modify calling party number.

Tariffication – possibility to limit SIM card by free minutes and free SMSes.

Fig. 18 – 'Add LCR tariff' form

Tariff name – It's user defined name for certain tariff.

Line ID – Selected SIM or Line to which tariff is applied.

Time intervals – Time when tariff is applied.

Restore limit every day - tick when tariff (free minutes) should be restored every day.

Day of restore call limit – Day in month when tariff (free minutes) are restored.

Tariffication – settings for counting used seconds/minutes.

Free minutes, Free SMS – amount of minutes/SMSes to be used during accounting period (month or day).

Example on the picture – the tariff is applied to SIM card 89.......8413, only during weekdays and workdays (time intervals defined in previous step). Limit is restored for 1st day in each months (proper time and day must be set in the unit). Accounting of called minutes is done following way: when call starts, it charges 60 seconds immediately, when these 60 seconds are spent, then next 30 seconds are charged. SIM can be used for 300 outgoing minutes and 50 sent SMSes per each month. When the call limit is exceed, it is not possible to make an outgoing call.

Routes – List of existing routes and adding and removing routes. *A Route* means outgoing trunk (bundle of SIMs, modules, SIP lines or DISA lines).

Fig. 19 – 'Add route' form

There is a route named 'Mobile Networks' on the picture which contains all modules, it is being used during all defined time intervals without suppressing CLI (CLI can be suppressed for mobile networks only).

LCR rule – Routing of call is based on the called number. LCR rule basically defines to which Route dialed numbers are routed (according prefix).

Fig. 20 – 'Add LCR table item' form

There is an example of a LCR rule. Destination name is user defined, the rule is applied to called numbers with prefixes 6 or 7, call is routed to the route ' Mobile networks' with unknown priority. Priority can be according free minutes, first free or cycle (for free minutes and cycle a tariff must be defined for each line of the route).

LCR test – you can test routing rules after setting all routing rules and routes. For routing test SIM cards must be placed in the unit in order to have test fully functional.

GSM routing – setting of incoming calls routing. The procedure is follow: at first it is necessary to define operator's service and then assign operator's service to a module. *Operator's service* can be routing to a

specific number through the specified line (for calls to a IP phone registered in the internal SIP proxy it is *internal SIP line* – in this case is necessary to fill operator's number).

SIP PROXY – into the internal SIP proxy IP phones are registered. SIP proxy serves as a registrar and location server. For outgoing calls out from SIP proxy (e.g. to a SIP provider) serves also as a RTP proxy.

Fig. 21 – SIP proxy's main screen

By SIP proxy routing rules is defined routing (according the prefix of dialed number). There are 2 rules by default: all dialed numbers with prefix 0 are routed to the internal SIP line and the rest is considered as to be looked up for registered IP phones.

Fig. 22 – 'Add rule' for proxy routing form

On the picture: routing is done according prefix, action might be: 'connect to LCR', 'reject', 'change host and port' and 'lookup registration'. By parameter is meant routing destination of the call. There is a significant difference against Normalization table – prefix is not removed in the proxy rule.

Switch SIP Proxy off – proxy may be switched off when the unit is used as an UMTS router only.

Registration – you can check registered phones here.

7 Administration

Main configuration: There can be set main parameters for using the device (e.g. PIN for SIM cards, DSP codecs – G.729 or G.723, enable Mobility Extension).

Administration

Confirm remove:	☑
SIM card routing:	☐
Enable SIP session progress:	☑
Advanced config of regular expressions:	☐
PIN for SIM cards:	0000
Disable GSM alerting detection:	☐
DSP codec:	G729
Default language	en
Max user session time:	3600 (seconds)
Simple login page:	☐
Mobility Extension:	
Outgoing ME enabled:	☑
Incoming ME enabled:	☑
Mobility extension SIP route:	10.0.0.1:5061

Fig. 23 – Administration – Main configuration

Set timezone: setting of timezone where OfficeRoute is used.

Synchronize time: Synchronization of OfficeRoute's time with PC time.

Update firmware: The new firmware can be found on the webpage www.2n.cz.

Update licence: You can ask for main and additional licences your distributor/reseller.

Configuration backup: Back-up of whole configuration (includes the licence and IP address

setting = when is loaded into a unit, erases the previous licence and changes IP address of the unit).

SNMP: Setting of SNMP traps sending.

Reboot: Reboot the device. Reboot takes approximately 3 minutes.

8 States&Logs

States: *Tariffication* – Amount of free minutes/SMSes.

Calls – Information about actual calls.

Devices – Strength of signal, status of registration to external proxies.

Registrations – Information about registered users.

Call accounting – detailed records of calls to mobile networks.

Logs – Overview of logs for debugging and troubleshooting.

Download logs – Possibility to download all logs zipped into one file. There can be set main parameters for using the device (e.g. PIN for SIM cards, DSP codecs – G.729 or G.723, enable Mobility Extension).

9 Messaging

SMS: Sending of SMSes from web interface. Each user with SMS rights can log in ans send or receive SMSes.

There are 4 folders: Inbox, Sent, To Send, Failed. By clicking to icon in the right downer corner 'Create a new message' you can create a new SMS message.

SMS delivery: Settings for SMS sending/receiving. Settings are applied to both web and SMTP/POP3 way of sending/receiving SMSes.

Settings for SMS sending/receiving via SMTP/POP3 protocols: OfficeRoutes's internal POP3 server provides SMS downloading from VBE via e-mail.

Authorization goes through USERNAME and PASSWORD, which are used for registering to web-based interface of VBE. Each SMS will be changed to e-mail in the Inbox directory, after successful

authorization of VBE. There will be SMS sender tel. number@domain name and SMS receiver *tel. number@ domain name* (domain name could be set through web-based interface, according to Figure 27 in the header of e-mail,   subject of the message will be filled according to VBE settings. You can use formatting strings in the text as well (%n – sender number, %u – receiver number, %d – date). Message, which is already read, could be deleted from POP3 server. You can delete the message from VBE, or mark it as already read (i.e. it is still available in the Inbox directory through web-based interface, but POP3 server can not see it, Fig. 27.

Distribute incoming messages

Parse contents:	☐
Message response:	☑
VIP numbers:	☐
Save outgoing messages to Sent folder:	☐
Module 1 – Deliver SMS to user	200
Module 2 – Deliver SMS to user	201
Module 3 – Deliver SMS to user	203
Module 4 – Deliver SMS to user	Admin
For outgoing SMS use	GSM module 2

Automatic answers delivering

Answer arrives until	360 Seconds

SMTP/POP3 server settings

Email domain name	213.29.92.51
Delete SMS with POP3	Delete permanently
POP3 email subject	SMS from %n to %u, date %d
Maximum number of SMS per email	2
SMTP IP access control	☐
SMTP authentication required	☑
Allow 16-Bit SMS	☑
Allow SMS concatenating	☑
Insert email sender to SMS	☐
Insert email subject to SMS	☐

Fig. 24 – SMS delivery – Main configuration

OfficeRoute's internal SMTP server provides sending e-mail messages as SMS from VBE. USERNAME and

PASSWORD for authorization are the same as the USERNAME and PASSWORD for web-based interface of VBE. Authentication could be set in web-based interface of VBE. Domain name must be equal to POP3 domain name (Fig. 27). Server awaits e-mail in format Text/Plain, Text/HTML, Multipart/Mixed or Multipart/Alternative. From the message in format Text/HTML, only the body of HTML message, without formatting, is put onto the SMS message. From messages Multipart/Mixed and Multipart/Alternative only the first part of message is used, enclosed between strings, mentioned in the header under name "boundary". Server supports the only messages in 7 bit format in encoding according to ISO-8859-1 or 16 bit Unicode UTF-8 (messages with the different encoding could be illegible after receiving message in form of SMS). SMTP server enables sender IP address control as well as authentication. With help of web-based interface, you can enable or disable IP address control as well as set the list of allowed IP addresses (Fig. 27 and Fig. 28). SMTP server makes one or more SMS messages from incoming e-mail (maximum number of created SMS messages is set in web-based interface. It is possible to set from 0 to 100 messages, Fig. 27) in form F:<sender><CRLF>S:<e-mail subject (max. 10 characters)><CRLF>e-mail body. Messages with length of 160 characters are sent subsequently to receiver via Admin account (already sent SMS messages are available in SENT directory of user Admin).

Fig. 25 – SMS delivery – SMTP IP access

10 Technical Parameters

VoIP

Signalling standards	SIP
Number of channels	4
Codecs	G.711 PCM (64 kbps) G.729A CS-ACELP (8 kbps) G.723.1 MP-MLQ/ACELP 6.3 kbps (optional)
PCM quantizing	A-law / μ-law

Mobile networks

Mobile network type	UMTS WCDMA FDD EGSM 900 phase II GSM 1800 MHz
SIM cards	Plug-in 3V ("small")
Transmission power	2W (1W)
Receiver sensitivity	-95 (-104) dBm

Antenna

Frequency	UMTS WCDMA FDD 850/1900/2100 MHz GSM 850/900/1800/1900 MHz
Impedance	50 Ω
Maximum output power	2W
Antenna connector type	SMA

Power Supply

Adapter	230V±10%, 50/60Hz / 12V DC
Supply voltage	12V / 2.5A
Supply connector	DC jack, 2.1 mm
Power input	max. 20W

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2N OfficeRoute

Interface

USB	Connector type A and B, host and master USB 2.0
Micro SD	
Ethernet	RJ-45 10/100 Base T
Protocols	IP, ICMP, TCP, UDP, DHCP, RTP, TELNET, SSH, HTTP, HTTPS, SMTP, SNMP, POP3

Operational Conditions

Temperature	0°C ÷ 40°C
Relative humidity	5 ÷ 90% non-condensing

Others

Dimensions (without connectors)	250×150×50 mm
CE certification	EN 60 950:2000, EN 55 024, EN 55 022 Class B

www.2n.cz